

## **Arkema Facility - Harvey Response**

Crosby, TX

Arkema Inc.

September 8, 2017

Project #109489 Summary

## 1.0 Introduction

As a result of flooding events related to Hurricane Harvey, the Arkema facility located in Crosby, TX suffered a loss of power and failure on refrigeration of manufacturing process. The loss of temperature control resulted in degradation and heating of organic peroxides, with the potential of creating a fire. As a precautionary measure, local authorities established a 1.5-mile radius evacuation zone around the facility.

On August 31, 2017, the Center for Toxicology and Environmental Health, LLC (CTEH®) was contacted by Arkema Inc. (Arkema) to initiate air monitoring and sampling around the community areas outside of the evacuation zone perimeter. This submittal summarizes the results of real-time air monitoring conducted by CTEH® personnel from 06:00 on September 7, 2017 to 06:00 on September 8, 2017. A map of the site location is provided in **Attachment A**.

## 2.0 Real-time Air Monitoring

All real-time air monitoring instrumentation was calibrated per the manufacturer's recommendations prior to air monitoring. Handheld, real-time air monitoring was conducted for oxygen (O<sub>2</sub>) and volatile organic compounds (VOCs) using RAE Systems MultiRAE instruments. Additionally, particulate matter (PM<sub>2.5</sub>) was assessed using TSI SidePak AM510s. **Table 1** summarizes the data for all real-time air monitoring readings recorded in the Crosby, TX Community from 06:00 on September 7, 2017 through 06:00 on September 8, 2017 and Table 2 summarizes the Worker Activity real-time air monitoring readings from within the site boundary for the same period. Maps of real-time air monitoring locations are provided as **Attachment B**.

**Table 1 Community Real-time Handheld Air Monitoring Readings**  
**06:00 September 7, 2017 – 06:00 September 8, 2017**

Analyte	Instrument	Number of Readings	Number of Detections	Range of Detections*
PM <sub>2.5</sub>	AM510	112	112	0.012 - 0.320 mg/m <sup>3</sup>
VOCs	MultiRAE	112	0	< 0.1 ppm

\*If detections were not observed, the instrument detection limit is listed in this column.

**Table 2 Worker Activity Real-time Handheld Air Monitoring Readings**  
**06:00 September 7, 2017 – 06:00 September 8, 2017**

Analyte	Instrument	Number of Readings	Number of Detections	Range of Detections*
LEL	MultiRAE	2	0	< 1.0 %
O <sub>2</sub>	MultiRAE	1	1	20.9 %
VOCs	MultiRAE	6	0	< 0.1 ppm

\*If detections were not observed, the instrument detection limit is listed in this column.

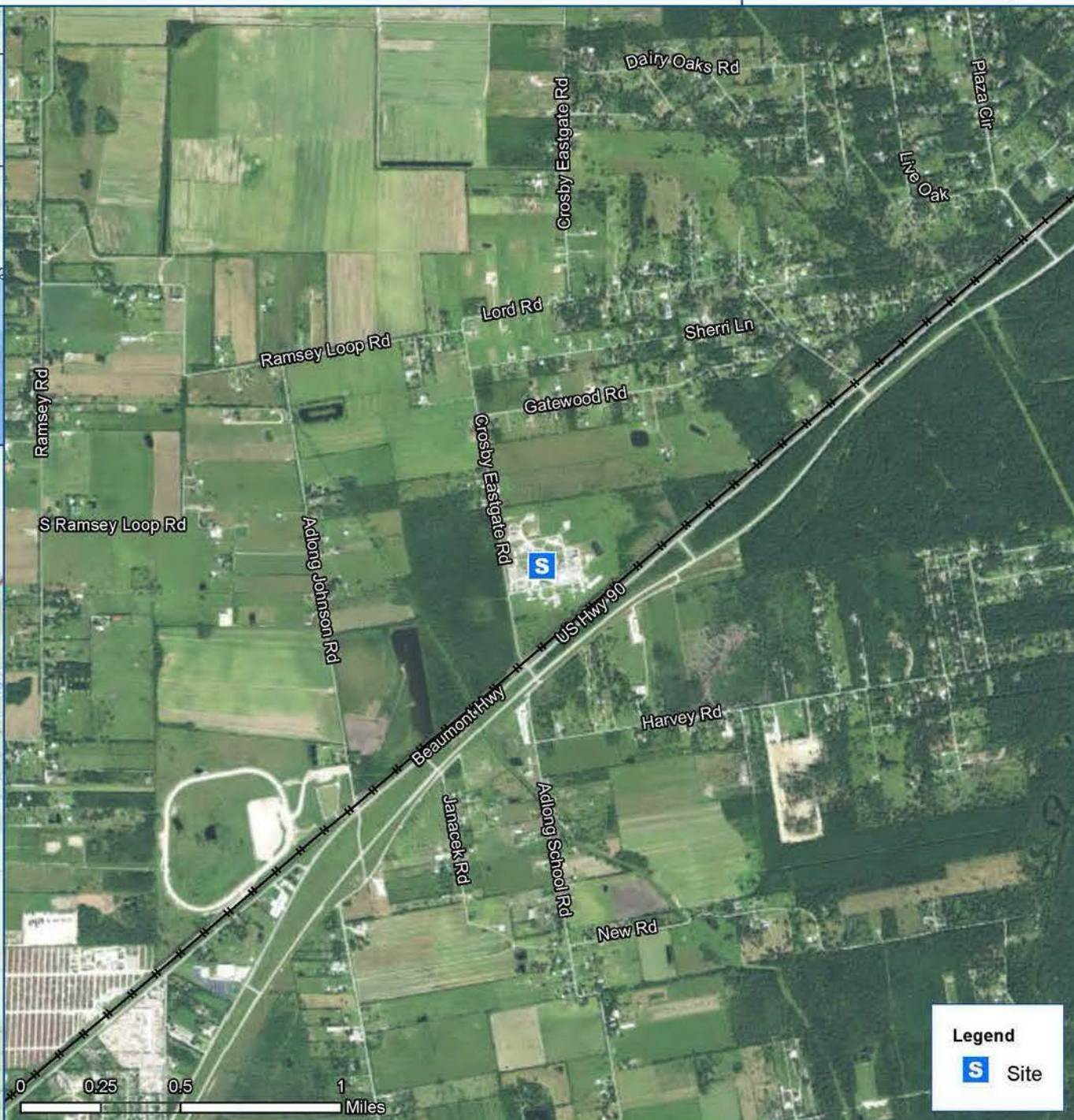
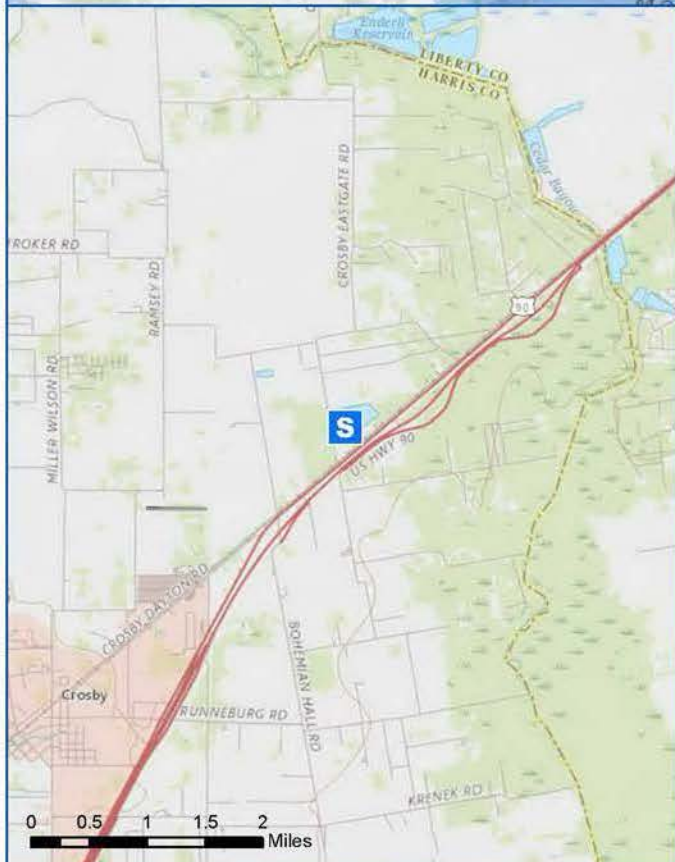
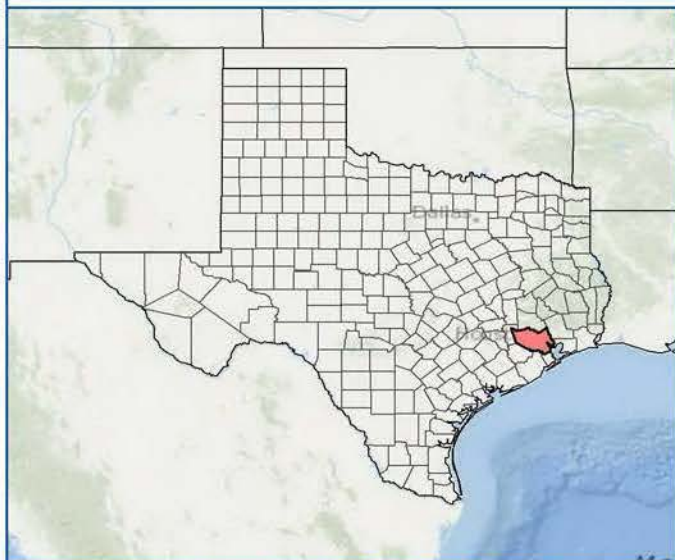
### 3.0 Analytical Air Sampling

To supplement real-time air monitoring, CTEH® deployed areas along the perimeter of the evacuated area within the community. Evacuated canister (Minican™) samplers were regulated to collect air evenly over a 24-hr period. Analytical air samples will be submitted to SGS Galson Laboratories, an AIHA-accredited laboratory, for analysis using EPA Method TO-15. A map highlighting the analytical air sampling locations is provided as **Attachment C**. Analytical Air Sampling Results will be reported upon receipt from the laboratory.

# **Attachment A**

## **Site Location Map**





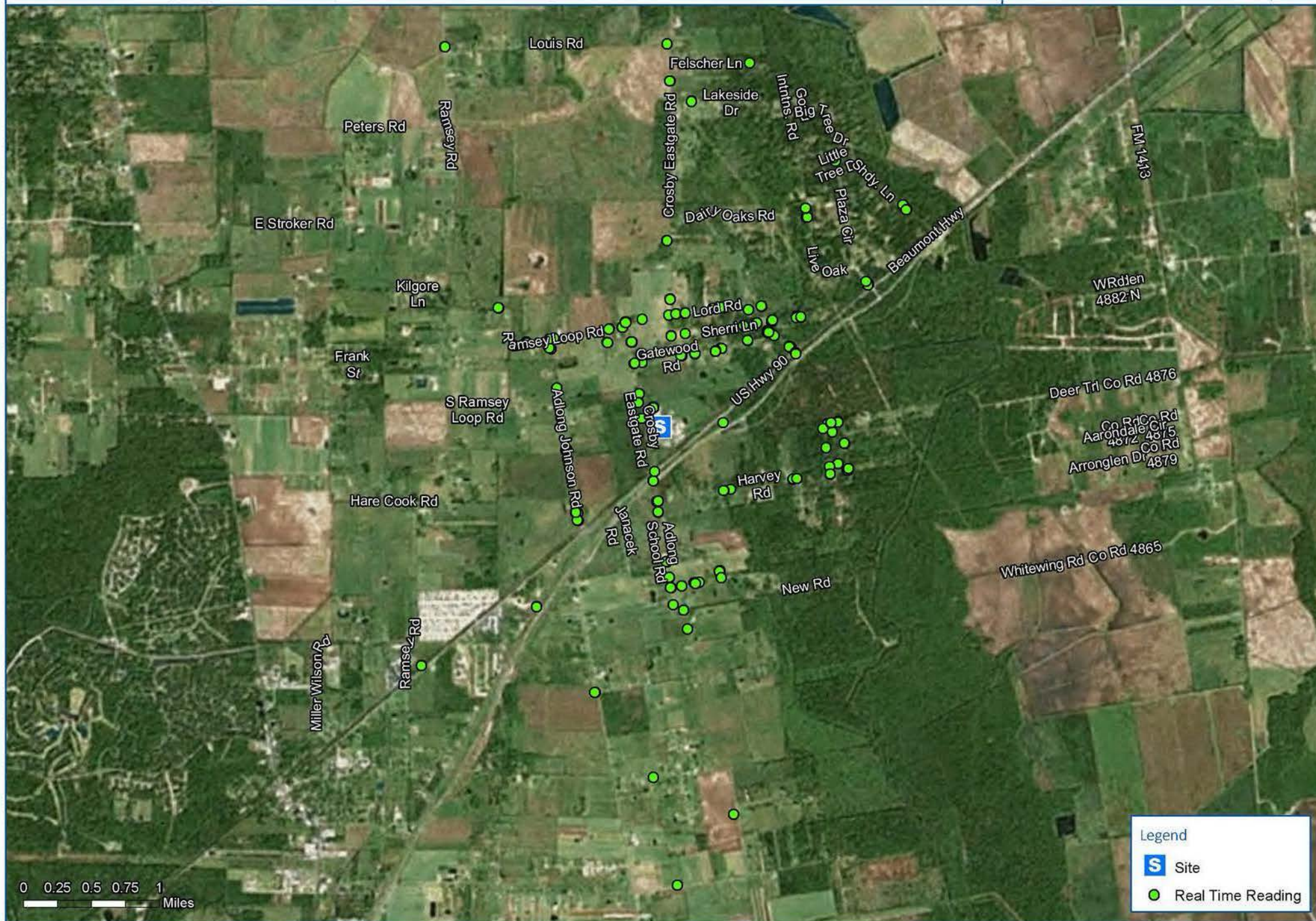
**Legend**

**S** Site

# **Attachment B**

## **Handheld Real-time Air Monitoring Locations**



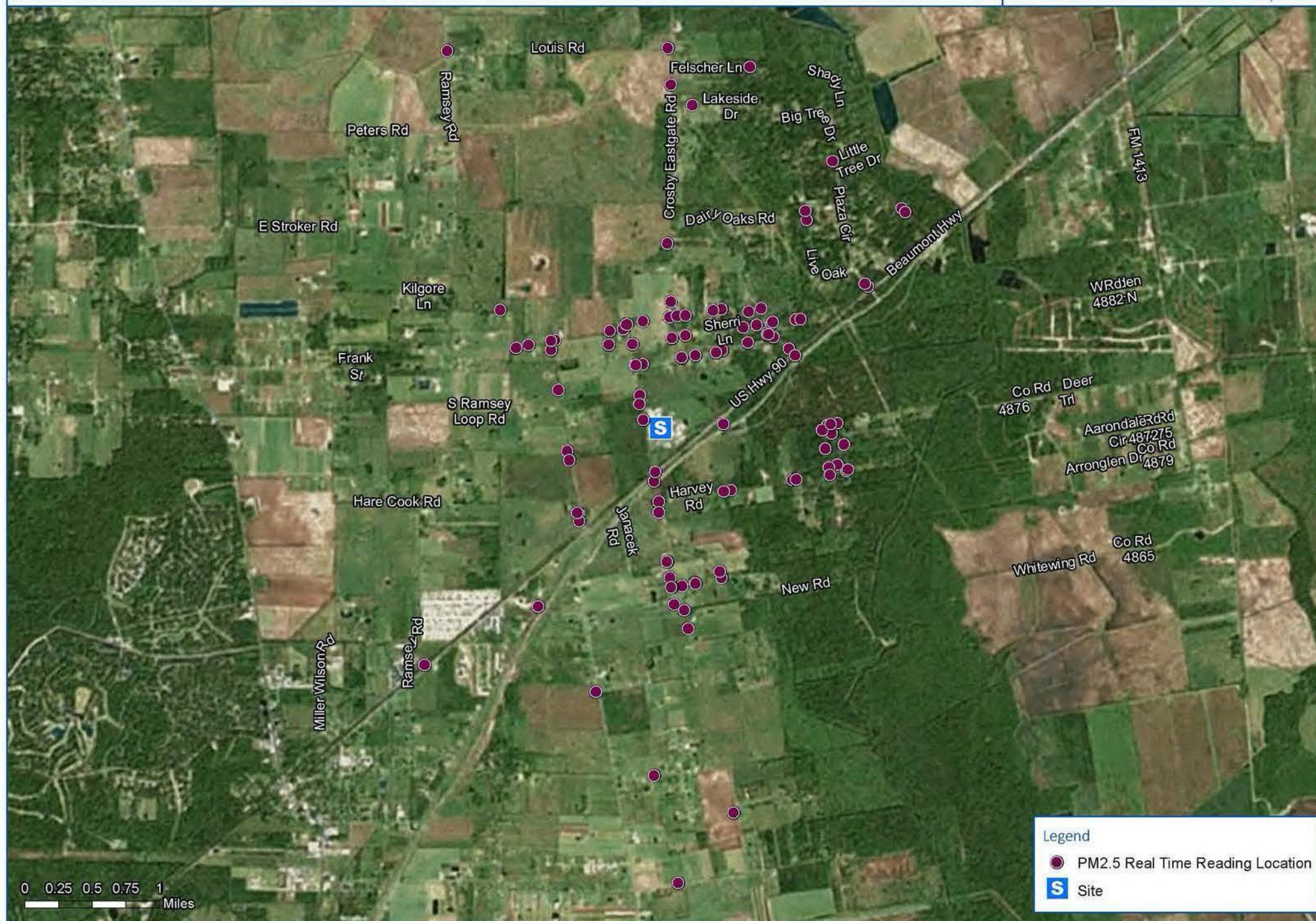


## Legend

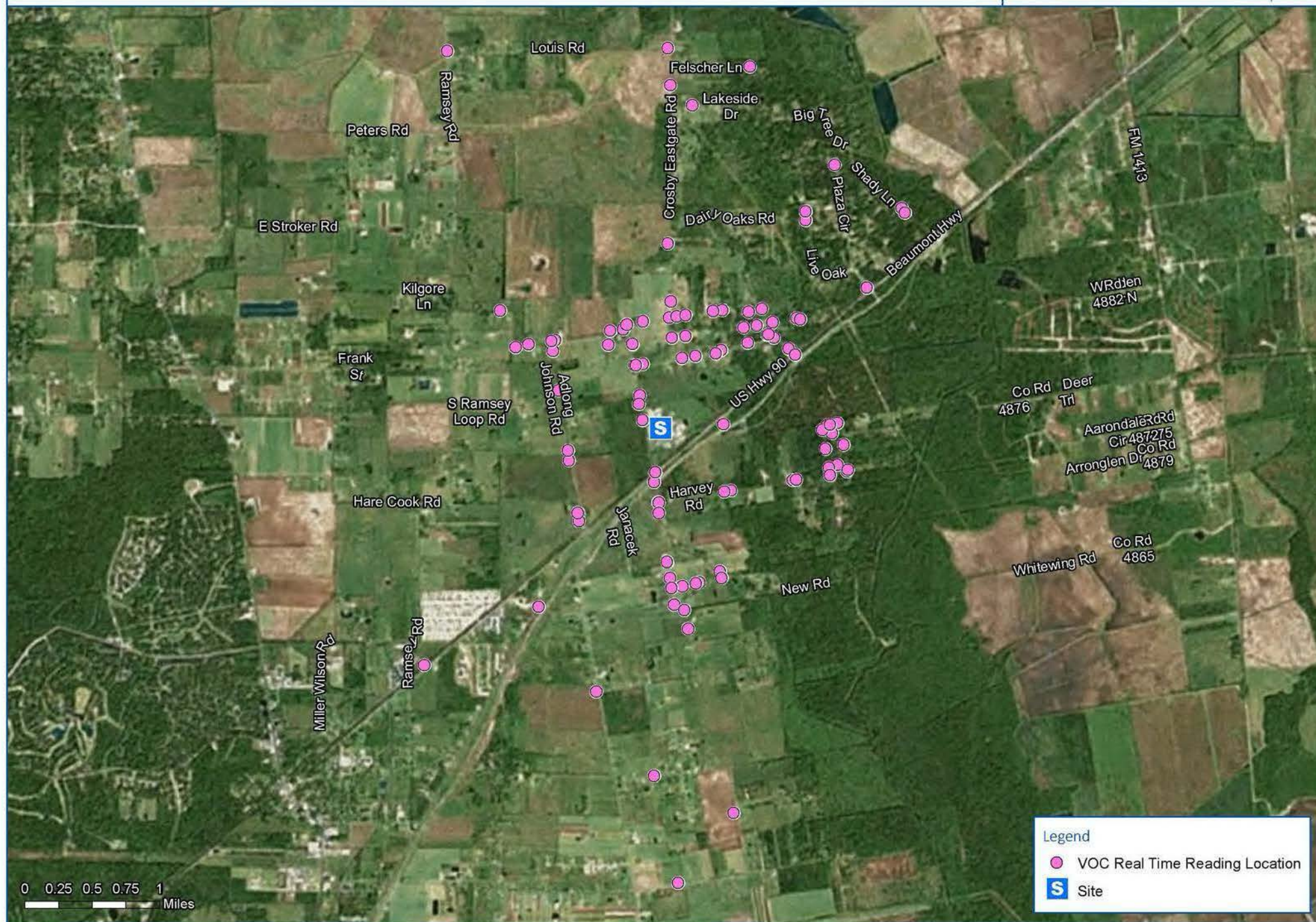
Site

Real Time Reading













## Legend

● LEL Real Time Reading Locations

S Site











# **Attachment C**

## **Map of Analytical Air Sampling Locations**

# **Attachment D**

## **K6R3 Weather**

**(Cleveland Municipal Airport - 27.3 miles North of Site)**



# Cleveland, TX

Cleveland

3:40 PM CDT on September 08, 2017 (GMT -0500)

Forecast **History** Calendar Rain / Snow Health

## Weather History for K6R3 - September, 2017

From:

September

7

2017

To:

September

8

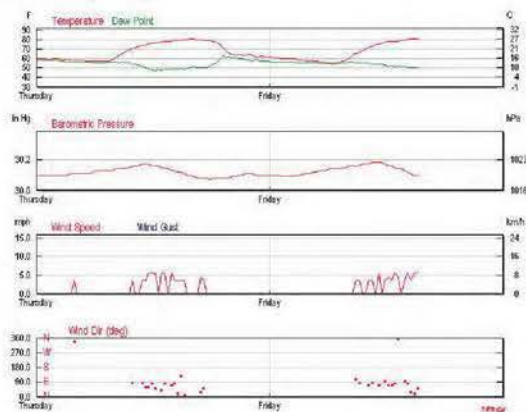
2017

Get History

Daily Weekly Monthly **Custom**

	Max	Avg	Min	Sum
<b>Temperature</b>				
Max Temperature	81 °F	81 °F	81 °F	
Mean Temperature	69 °F	68 °F	68 °F	
Min Temperature	57 °F	56 °F	56 °F	
<b>Degree Days</b>				
Heating Degree Days (base 65)	0	0	0	0
Cooling Degree Days (base 65)	4	4	4	8
Growing Degree Days (base 50)	19	18	18	37
<b>Dew Point</b>				
Dew Point	63 °F	56 °F	48 °F	
<b>Precipitation</b>				
Precipitation	0.00 in	0.00 in	0.00 in	0.00 in
Snowdepth	-	-	-	-
<b>Wind</b>				
Wind	6 mph	1 mph	0 mph	
Gust Wind	-	-	-	
<b>Sea Level Pressure</b>				
Sea Level Pressure	30.18 in	30.12 in	30.07 in	

## Custom Weather History Graph



## Weather History & Observations

2017	Temp. (°F)			Dew Point (°F)			Humidity (%)			Sea Level Press. (in)			Visibility (mi)			Wind (mph)			Precip. (in)	Events
Sep	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	low	high	avg	high	sum	
7	81	69	57	63	56	48	96	70	32	30.17	30.11	30.07	10	10	7	6	1	-	0.00	
8	81	68	56	58	55	51	96	72	34	30.18	30.13	30.09	10	9	7	6	1	-	0.00	

CTEH

ARK\_HCPCSD\_0000090